

What Is Claimed Is:

1. A multi-layer thermal imaging receptor comprising:
 - a first support coated with at least:
 - a heat sensitive releasable transfer layer coated on the first support;
 - an interfacial bonding layer coated on the heat sensitive releasable transfer layer; and
 - an image receiving layer coated on the interfacial bonding layer and adapted to adhere to a second support when heated;
 - wherein the interfacial bonding layer is adapted to enhance adhesion between the heat sensitive releasable transfer layer and the image receiving layer.
2. The multi-layer thermal imaging receptor of claim 1 wherein the first support is plain paper, coated paper, glass, polymeric films or mixtures thereof.
3. The multi-layer thermal imaging receptor of claim 1 wherein the first support is a polyester film.
4. The multi-layer thermal imaging receptor of claim 1 wherein the second support is plain paper, thin paper, coated paper, glass, polymeric films or mixtures thereof.
5. The multi-layer thermal imaging receptor of claim 1 wherein the second support is thin paper.
6. The multi-layer thermal imaging receptor of claim 1 wherein the heat sensitive releasable transfer layer is adapted to substantially separate from the first support upon heating.
7. The multi-layer thermal imaging receptor of claim 1 wherein the heat sensitive releasable transfer layer comprises polyvinyl butyral.
8. The multi-layer thermal imaging receptor of claim 7 wherein hydroxyl moieties of the polyvinyl butyral react with the interfacial bonding layer.

9. The multi-layer thermal imaging receptor of claim 7 wherein the polyvinyl butyral is present in an amount of from about 4.95wt% to about 20wt% based on the total weight of the heat sensitive releasable transfer layer.
10. The multi-layer thermal imaging receptor of claim 1 wherein the heat sensitive releasable transfer layer further comprises a bleaching agent.
11. The multi-layer thermal imaging receptor of claim 10 wherein the bleaching agent is adapted to bleach infrared dye.
12. The multi-layer thermal imaging receptor of claim 10 wherein the bleaching agent crystallizes in the image receiving layer at ambient temperature.
13. The multi-layer thermal imaging receptor of claim 10 wherein the bleaching agent is soluble in methyl ethyl ketone.
14. The multi-layer thermal imaging receptor of claim 10 wherein the bleaching agent is diphenylguanidine.
15. The multi-layer thermal imaging receptor of claim 10 wherein the interfacial bonding layer is adapted to permit migration of the bleaching agent from the heat sensitive releasable transfer layer into the image receiving layer upon heating.
16. The multi-layer thermal imaging receptor of claim 10 wherein the bleaching agent is present in an amount of from about 2 to about 22 wt% based on the total weight of the heat sensitive releasable transfer layer.
17. The multi-layer thermal imaging receptor of claim 1 wherein the heat sensitive releasable transfer layer further comprises a texturizing material.

18. The multi-layer thermal imaging receptor of claim 17 wherein the texturizing material comprises polymethyl methacrylate beads.
19. The multi-layer thermal imaging receptor of claim 17 wherein the polymethyl methacrylate beads are present in an amount of from about 0.05wt% to about 3.0 wt% based on the total weight of the transfer layer.
20. The multi-layer thermal imaging receptor of claim 1 wherein the heat sensitive releasable transfer layer is a thin film, solvent extruded coating.
21. The multi-layer thermal imaging receptor of claim 20 wherein the solvent is methyl ethyl ketone.
22. The multi-layer thermal imaging receptor of claim 1 wherein the interfacial bonding layer comprises a maleic anhydride modified ethylene copolymer.
23. The multi-layer thermal imaging receptor of claim 1 wherein the interfacial bonding layer is a thin film, solvent extruded coating.
24. The multi-layer thermal imaging receptor of claim 23 wherein the solvent is toluene or a solvent blend of toluene and methyl ethyl ketone.
25. The multi-layer thermal imaging receptor of claim 1 wherein the image receiving layer is further adapted to be tack-free at ambient conditions.
26. The multi-layer thermal imaging receptor of claim 1 wherein the image receiving layer is further adapted to be color stable.
27. The multi-layer thermal imaging receptor of claim 1 wherein the image receiving layer comprises a thermoplastic adhesive.

28. The multi-layer thermal imaging receptor of claim 27 wherein the thermoplastic adhesive is present in an amount of from about 4.95 wt% to about 38 wt% based on the total weight of the thermoplastic adhesive image receiving layer.

29. The multi-layer thermal imaging receptor of claim 1 wherein the image receiving layer comprises styrene butadiene.

30. The multi-layer thermal imaging receptor of claim 29 wherein the styrene butadiene reacts with hydrophobic moieties of the interfacial bonding layer.

31. The multi-layer thermal imaging receptor of claim 1 wherein the image receiving layer comprises a plasticizer.

32. The multi-layer thermal imaging receptor of claim 31 wherein the plasticizer is present in an amount of from about 0.05 wt% to about 10 wt% based on the total weight of the image receiving layer.

33. The multi-layer thermal imaging receptor of claim 1 wherein the image receiving layer is a thin film solvent extruded coating.

34. The multi-layer thermal imaging receptor of claim 33 wherein the solvent is toluene.

35. A multi-layer thermal imaging receptor comprising:

 a first support coated with at least:

 a heat sensitive releasable transfer layer coated on the first support comprising:

 polyvinyl butyral;

 a bleaching agent; and

 a texturizing material

 an interfacial bonding layer covering the heat sensitive releasable transfer layer comprising:

 a maleic anhydride modified ethylene copolymer; and

an image receiving layer covering the interfacial bonding layer and adapted to adhere to a second support when heated comprising:

styrene butadiene; and

a plasticizer;

wherein the interfacial bonding layer is adapted to enhance adhesion between the heat sensitive releasable transfer layer and the image receiving layer.

36. The multi-layer thermal imaging receptor of claim 35 wherein the first support is plain paper, coated paper, glass, polymeric films or mixtures thereof.

37. The multi-layer thermal imaging receptor of claim 35 wherein the substrate is a polyester film.

38. The multi-layer thermal imaging receptor of claim 35 wherein the bleaching agent of the heat sensitive releasable transfer layer is diphenylguanidine.

39. The multi-layer thermal imaging receptor of claim 35 wherein the texturizing material of the heat sensitive releasable layer is polymethyl methacrylate beads.

40. A method of imaging comprising:

(1) providing a multi-layer thermal imaging receptor comprising a first support coated with at least:

a heat sensitive releasable transfer layer coated on the first support;

an interfacial bonding layer coated on the heat sensitive releasable transfer layer; and

an image receiving layer coated on the interfacial bonding layer and adapted to adhere to a second support when heated;

wherein the interfacial bonding layer is adapted to enhance adhesion between the heat sensitive releasable transfer layer and the image receiving layer;

(2) providing a donor element;

(3) assembling the multi-layer thermal imaging receptor in contact with the donor element and exposing the assembly to laser radiation, said laser radiation modulated with digitally stored image information, and transferring portions of the donor layer to the image receiving layer of the multi-layer thermal imaging receptor; and

(4) separating the donor element and the multi-layer thermal imaging receptor, leaving an image residing on the multi-layer thermal imaging receptor.

41. The method of imaging of claim 40 wherein the method further comprises subjecting the multi-layer thermal imaging receptor and image residing thereon to heat treatment.

42. The method of imaging of claim 40 wherein the method further comprises transferring the image from the multi-layer thermal imaging receptor to a second support.

43. The method of imaging of claim 42 wherein transferring the image from the multi-layer thermal imaging receptor to a final surface further comprises heating the multi-layer thermal imaging receptor to at least the glass transition temperature of the heat sensitive releasable transfer layer.

44. The method of imaging of claim 40 wherein steps (1)-(4) form a cycle which is repeated using a different donor element comprising a different colorant for each cycle with the same multi-layer thermal imaging receptor.

45. A method of making a multi-layer thermal imaging receptor comprising the steps of:

providing a first support;

coating a thin film extrusion coating of a heat sensitive releasable transfer layer from a solvent solution onto the substrate;

coating a thin film extrusion coating of a distinct interfacial bonding layer from a solvent solution on top of the heat sensitive releasable transfer layer; and

coating a thin film extrusion coating of a distinct image receiving layer from a solvent solution on top of the interfacial bonding layer.

46. The method of making a multi-layer thermal imaging receptor of claim 45 wherein the heat sensitive releasable transfer layer is solvent extruded onto one side of the substrate.
47. The method of imaging of claim 45 wherein the heat sensitive releasable transfer layer is solvent extruded from methyl ethyl ketone.
48. The method of making a multi-layer thermal imaging receptor of claim 45 wherein the interfacial bonding layer is solvent extruded on top of the heat sensitive, releasable transfer layer.
49. The method of imaging of claim 45 wherein the interfacial bonding layer is solvent extruded from toluene or a solvent blend of toluene and methyl ethyl ketone.
50. The method of making a multi-layer thermal imaging receptor of claim 45 wherein the image receiving layer is solvent extruded on top of the interfacial bonding layer.
51. The method of imaging of claim 45 wherein the image receiving layer is solvent extruded from toluene or a solvent blend of toluene and methyl ethyl ketone.
52. The method of making a multi-layer thermal imaging receptor of claim 45 wherein the method further comprises the step of subjecting the multi-layer thermal imaging receptor to heat treatment.